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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte STEVEN D. JACOB, WILLIAM GLASER
and PAUL E. PELCZYNSKI

Appeal 2008-1261
Application 10/609,007
Technology Center 3700

Decided: November 26, 2008

Before JENNIFER D. BAHR, LINDA E. HORNER, and
JOHN C. KERINS, *Administrative Patent Judges*.

KERINS, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Steven D. Jacob et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 1-26, the only claims pending in the application. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We REVERSE.

THE INVENTION

Appellants' claimed invention is to an apparatus and method for calibrating a Venturi valve. (Appeal Br., Claims Appendix, claims 1, 11, 17). A Venturi valve employs a particular valve geometry and a spring-loaded mechanism that cooperate to maintain a constant output air flow velocity irrespective of changes in source air pressure or source flow velocity. (Specification, p. 1, ll. 11-15). The calibration is effected using a processing circuit that receives flow measurements for a plurality of valve shaft positions (the valve shaft position having a direct relationship to output air flow velocity, which varies from valve to valve), and storing information representative of this relationship. (Specification, p. 3, l. 21-p. 4, l. 5).

Claims 1, 11 and 17, reproduced below, are representative of the subject matter on appeal.

1. An arrangement for calibrating a Venturi valve, the Venturi valve having a variable shaft position, the Venturi valve operable to provide an air flow corresponding to the variable shaft position, the arrangement comprising:

a source of flow measurements; and

a processing circuit operable to

provide a plurality of voltages to an actuator, the actuator operable to change the variable shaft position dependent on said plurality of voltages,

receive from the source of flow measurements a flow measure for each variable shaft position corresponding to each of the plurality of voltages, and

store information representative of the relationship between each of the plurality of voltages and the flow measures.

11. A method of calibrating a Venturi valve, the Venturi valve having a variable shaft position, the Venturi valve operable to provide an air flow corresponding to the variable shaft position, the method comprising:

- a) installing the Venturi valve in a facility;
- b) after installing the Venturi valve, providing a plurality of voltages to an actuator, the actuator operable to change the variable shaft position dependent on said plurality of voltages,
- c) receiving from a source of flow measurements a flow measure for each variable shaft position corresponding to each of the plurality of voltages,
- d) storing information representative of the relationship between each of the plurality of voltages and the flow measures; and
- e) using the Venturi valve as a part of a system that regulates air flow within the facility.

17. A method of calibrating a Venturi valve, the Venturi valve having a variable shaft position, the Venturi valve operable to provide an air flow corresponding to the variable shaft position, the method comprising:

- a) determining a first actuator voltage associated with a predetermined first flow value;
- b) determining a second actuator voltage associated with a predetermined second flow value;
- c) providing a set of other voltages to the actuator and obtaining a corresponding flow measurement for each of the set of other voltages, the set of other voltages being between the first actuator voltage and the second actuator voltage; and
- d) storing information representative of the relationship between each of a plurality of voltages and the flow measures, the plurality of voltages including the first actuator voltage, the second actuator voltage and the set of other voltages.

THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Sharp	US 5,304,093	Apr. 19, 1994
Bump ¹	EP 0 834 723 A1	Apr. 8, 1998

The following rejections by the Examiner are before us for review:

1. Claims 1, 3-5, 7-11, 13-15, 17-21, and 23-26 are rejected under 35 U.S.C. § 102(b) as being anticipated by Sharp.

¹ Appellants identify this reference as “Emerson”, in that Emerson Electric Company is listed as the Applicant for the European Patent Application, whereas Bump is the first-named inventor.

2. Claims 2, 6, 12, 16, and 22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sharp in view of Bump.

ISSUES

The Examiner found that the Sharp patent discloses a processing circuit that is capable of performing calibration functions including changing a valve shaft position by applying a plurality of different voltages to an actuator, receiving flow measures for each of the plurality of shaft positions, and storing information representative of the relationship between the voltages and the flow measures. (Answer 4). The Examiner further found that the steps of the claimed calibration method are necessarily performed in the usual and normal operation of the Sharp patent.

Appellants urge that the processing circuit in Sharp is not, as configured in that patent, operable to perform the claimed calibration functions, nor does the Sharp apparatus perform all steps of the claimed calibration method. (Appeal Br. 7-12; Reply Br. 3-6).

The issue joined in this appeal is: does the Sharp patent explicitly or inherently disclose the calibration functions or method steps (changing a valve shaft position by applying a plurality of different voltages to an actuator, receiving flow measures for each of the plurality of shaft positions, and storing information representative of the relationship between the voltages and the flow measures) set forth in Appellants' claimed invention?

FINDINGS OF FACT

The following enumerated findings of fact (FF) are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d

1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

FF 1. The processing circuit 55 in Sharp is not connected to a source of flow measurements, and thus does not receive flow measures. Sharp further does not disclose the possibility or desirability of receiving flow measures.

FF 2. The Sharp processing circuit, as disclosed, is not capable of receiving flow measures, and no capability is disclosed for storing information pertaining to obtained flow measures and associated actuator voltages.

FF 3. The Sharp processing circuit, as disclosed, receives only a signal indicative of a valve shaft position. (Sharp, Fig. 2; Col. 5, ll. 25-26). The signal received is processed through a circuit 57 that contains pre-stored valve characteristic data, and a signal indicative of actual fluid flow is generated. (Sharp, Fig. 2; Col. 5, ll. 26-29). That signal is forwarded to other control circuitry to perform various control functions. (Sharp, Fig. 2; Col. 5, ll. 29-31).

FF 4. The existence of circuit 57 in Sharp, which employs valve characteristic data, and the absence of any flow measurement device to obtain flow measurements for calibrating the Sharp valve, together evidence that the disclosed Sharp device does not perform calibration of the valve.

FF 5. The Bump reference contains no disclosure of an apparatus or method involving the calibration of a Venturi valve, in which flow measurements are obtained, then related to associated actuator voltages, and then information representative of that relationship is stored.

PRINCIPLES OF LAW

Anticipation of a claim exists when each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). Once a prima facie case of anticipation has been established, the burden shifts to the applicant to prove that the prior art product does not necessarily or inherently possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977); *In re Spada*, 911 F.2d 705, 708-09 (Fed. Cir. 1990).

Where the Patent Office has reason to believe that a functional limitation in a claim is an inherent characteristic of the prior art, the burden shift can include a requirement that the applicant establish that the prior art does not possess that characteristic. *In re Spada*, 911 F.2d at 708-09; *In re Ludike*, 441 F.2d. 660, 663-64 (CCPA 1971).

“Section 103 forbids issuance of a patent when ‘the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.’” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including (1) the scope and content of the prior art, (2) any differences between the claimed subject matter and the prior art, (3) the level of skill in the art, and (4) where in evidence, so-called secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1, 17-18 (1966). See also *KSR*, 127 S. Ct. at 1734 (“While the sequence of these

questions might be reordered in any particular case, the [*Graham*] factors continue to define the inquiry that controls.”)

ANALYSIS

Claims 1, 11, 17 and 21 are the independent claims on appeal, and all are rejected under 35 U.S.C. § 102(b). Appellants argue that claims 1, 11 and 17 are separately patentable, and that claim 21 is patentable for the same reasons presented for claim 1. Appellants do not argue for the separate patentability of any dependent claims that are rejected under § 102(b). Appellants further do not present any additional arguments for dependent claims 2, 6, 12, 16 and 22, rejected under 35 U.S.C. § 103(a).

Claims 1 and 21—Anticipation

The Examiner contends that, because apparatus claim 1 is worded such that certain functions or operations are set forth as functional limitations, all that need be shown to establish anticipation is that the cited reference discloses structure that is capable of performing the functions or operations. (Answer 4). The Examiner takes the position that the Sharp patent discloses a processing circuit and that this processing circuit is capable of performing the functions or operations that the processing circuit in claim 1 is operable to perform. (*Id.*).

Appellants contend that the Sharp patent does not disclose a processing circuit that is capable of, or operable to, receive flow measures from a source of flow measurements and to store information representative of the relationship between a plurality of voltages (correlatable to valve shaft position) and the received flow measures. (Reply Br. 3).

Appellants first point to the absence, in Sharp, of any connection or connectability between the processing circuit and a source of flow

measurements. Appellants contend that this constitutes evidence that the Sharp processing circuit, as disclosed, is not capable of performing the recited function of “receiv[ing] from the source of flow measurements a flow measure...” (Appeal Br., Claims Appendix)(Reply Br. 3). Appellants also note that Sharp contains no disclosure that the Sharp processing circuit is programmed or otherwise configured to perform an operation in which obtained information representative of a voltage/flow measure relationship is stored. (Reply Br. 3).

Appellants further argue that, to the extent it is germane to the Examiner’s position, a rejection founded on anticipation may not properly be based on the possibility that a disclosed structure could be modified to perform certain claimed operations. (Reply Br. 4).

Appellants’ arguments are persuasive that error exists in the anticipation rejection of claim 1. The Examiner’s contention that the Sharp processing circuit is capable of performing the functions found in claim 1 is not supported by the record.

The Sharp processing circuit is not connected to a source of flow measurements, and thus does not receive and is not capable of receiving flow measures therefrom. (FF 1). Since flow measures are not received by the Sharp processing circuit, it is evident that the circuit is further not capable of storing information that pertains to the obtained flow measures and actuator voltages indicative of valve shaft positions. (FF 2).

The Sharp processing circuit receives only a signal indicative of a valve shaft position, which is processed through a circuit that contains pre-stored data correlating shaft position to flow velocities, to produce a signal indicative of the actual fluid flow through the valve. (FF 3). That signal is

forwarded to other control circuitry to perform various control functions. (*Id.*).

The Examiner presents no evidence or reasoning as to how the processing circuit, as explicitly disclosed, is capable of performing the claimed functions. To the extent that the Examiner's position is that the Sharp patent contains an implicit disclosure of a processing circuit that is capable of performing the claimed functions, the Examiner has failed to identify any portion of the Sharp patent that would support such a finding. Even had the Examiner provided a sound basis for believing that the Sharp patent performs the claimed functions, Appellants have demonstrated that the Sharp device, as disclosed, is not capable of so performing. (FF 1). *See, In re Spada*, 911 F.2d at 708-09.

Finally, if it is the Examiner's position that the Sharp processing circuit could be configured to perform the claimed functions, a legally sufficient anticipation rejection requires either an explicit or implicit disclosure that the processing circuit *is* so configured. *See, Scripps Clinic & Res. Foundation v. Genentech, Inc.*, 927 F.2d 1565, 1576-77 (Fed. Cir. 1991)(rejection under §102 not proper where it is necessary to reach beyond the bounds of a single reference).²

The rejection of claims 1 and 21, and of claims 3-5, 7-10, and 23-26 depending from these claims, under 35 U.S.C. § 102(b) will not be sustained.

² The issue of whether it would have been obvious to modify Sharp to provide such capability has not been raised in this appeal.

Claim 11—Anticipation

The Examiner contends that, “[T]he arrangement disclosed by Sharp et al. necessarily performs the method recited in claims [*sic.*] 11 in its usual and normal operation.” (Answer 5). As with the rejection of claim 1 discussed above, the Examiner has fallen short of identifying the portions of the Sharp patent that support this contention.

Appellants accurately point out again that the apparatus in Sharp does not include any disclosure of a flow measurement device. (Appeal Br. 11). Accordingly, it is not possible for the Sharp apparatus to perform a calibration method in which one of the steps is, “receiving from a source of flow measurements a flow measure for each variable shaft position”. (Appeal Br., Claims Appendix)(FF 2). The Sharp apparatus further does not perform the claimed information storing step, in that the information to be stored includes information relative to flow measures received, whereas the Sharp apparatus does not receive such information. (FF 2).

Appellants additionally urge that Sharp does not disclose an *in situ* method of calibration, whereas the method of claim 11 is specifically directed to *in situ* calibration.³ The Examiner retorts that, “since the calibration curve [in Sharp] is being utilized to position the valve to produce a desired flow, such calibration necessarily refers to an ‘in-situ’ calibration.” (Answer 5).

Appellants stress that, simply because Sharp discloses that a calibration of the valve may be performed, it does not necessarily follow that

³ Appellants use the term *in situ* as a shorthand reference relating to limitations in claim 11 calling for the valve to be installed at a facility, and, after installation, performing the several calibration steps, and thereafter using the valve in regulating air flow within the facility.

the calibration is performed after the valve is installed for use. (Appeal Br. 11; Reply Br. 5). Indeed, the presence in Sharp of a circuit 57 that operates to transform signals based upon pre-stored valve characteristic data, coupled with the absence of a flow measurement device to obtain flow measurements for calibrating the valve, evidences that calibration of the valve in Sharp occurs, if at all, prior to installation for use. (FF 4).

The rejection of claim 11, and of claims 13-15 depending therefrom, under 35 U.S.C. § 102(b) will not be sustained.

Claim 17—Anticipation

The calibration method of claim 17 is also asserted by the Examiner to be necessarily performed by the Sharp apparatus. (Answer 6). The evidence and reasoning set forth by the Examiner again falls short of establishing that Sharp either explicitly or inherently discloses all elements or limitations in claim 17.

The claimed method contains three steps (denominated a), b), and c) in the claim) that involve obtaining a flow measurement or value, and a fourth step that involves storing information related in part to the obtained flow measures. (Appeal Br., Claims Appendix). As discussed *supra* in connection with the rejections of claims 1 and 11, the Sharp patent does not disclose any means by which flow measurements are obtained. (FF 1). Nothing in the Examiner's position addresses how these process steps are performed in the absence of such means.

The rejection of claim 17, and of claims 18-20 depending therefrom, under 35 U.S.C. § 102(b) will not be sustained.

Claims 2, 6, 12, 16, and 22—Obviousness

The Examiner rejects these claims as being obvious over the Sharp patent in view of the teachings of Bump. (Answer 3). Specifically, the Examiner asserts that it would have been obvious to include the calibration verification procedure or provisions, as disclosed in Bump, in the Sharp device. (Answer 8).

Appellants rely on the limitations set forth in independent claims 1, 11, 17, and 21, from which the rejected claims depend, as providing the elements that patentably distinguish the claimed invention over the combination of teachings of Sharp and Bump. Appellants contend that the shortcomings of Sharp relative to the independent claims are not addressed by the Bump reference.

Neither the portions of the Bump reference cited by the Examiner, nor any other part of the disclosure in Bump, appear to address calibration of a Venturi valve, in which flow measurements are obtained and are then related to associated actuator voltages, such that information representative of the relationship is stored. (FF 5). As such, the combination of the Bump reference with the Sharp patent does not render obvious the subject matter of claims 2, 6, 12, 16, and 22. The rejection of these claims under 35 U.S.C. § 103(a) will not be sustained.

CONCLUSION

Appellant has successfully established that reversible error exists in the rejection of claims 1, 3-5, 7-11, 13-15, 17-21, and 23-26 under 35 U.S.C. § 102(b) as anticipated by Sharp. Appellant has also successfully established that reversible error exists in the rejection of claims 2, 6, 12, 16, and 22 under 35 U.S.C. § 103(a) as unpatentable over Sharp and Bump.

ORDER

The decision of the Examiner to reject claims 1-26 is reversed.

REVERSED

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